

## CMCSS Math 5 Curriculum Guide

For the purpose of instruction teachers must remember that the end of the year TCAP will assess current Tennessee Diploma Project (TDP) standards, minus the SPIs which have been dropped (See box below). In addition, TCAP may include some items aligned to Common Core State Standards for the purpose of field testing.

**The State of Tennessee has removed the following standards from the TCAP. These standards have been removed from the district pacing guide and should no longer be taught within the 5th grade.**

SPI 0506.1.1 Given a series of geometric statements, draw a conclusion about the figure described.

SPI 0506.1.4 Identify missing information and/or too much information in contextual problems.

SPI 0506.2.2 Write the prime factorization of numbers through 50 using both exponential and standard notation.

SPI 0506.3.1 Evaluate algebraic expressions involving decimals and fractions using order of operations.

SPI 0506.3.4 Given a set of values, identify those that make an inequality a true statement.

SPI 0506.4.1 Solve contextual problems that require calculating the area of triangles and parallelograms.

SPI 0506.4.2 Decompose irregular shapes to find perimeter and area.

SPI 0506.4.3 Identify a three-dimensional object from two-dimensional representation of that object and vice versa.

SPI 0506.4.6 Record measurements in context to reasonable degree of accuracy using decimals and/or fractions.

SPI 0506.5.2 Make predictions based on various data representations, including double bar and line graphs.

SPI 0506.5.3 Calculate measures of central tendency to analyze data.

### Common Core Standard Domains

NBT - Number & Operations in Base Ten	CC - Counting and Cardinality (K Only)
OA - Operations and Algebraic Thinking	MD - Measurement and Data
NF - Number & Operations - Fractions	G - Geometry

**Appropriate Common Core State Standards and Clusters are followed by one of the following symbols.**

- Major Clusters/Standards
- Supporting Clusters/Standards
- Additional Clusters/Standards

**FS** Fluency Standard

**The state has identified specific CCSS that must be taught. These 'mathematical focus standards' are in cells that are highlighted in green. Additional time in pacing has been given in units where highlighted mathematical focus standards are listed.**

### **Common Core Focus Standards**

Tennessee's transition to the CCSS Math (CCSSM) will continue with grades 3-8 in the 2012-2013 school year. Teachers will still teach the current TDP standards (minus the SPIs to be dropped from the TCAP). In addition, teachers will also be teaching the TNCore Focus Standards. These Focus Standards will allow teachers to focus where the Common Core focuses: on the essential knowledge and skills students need at each grade level in order to advance to the next level of mathematical understanding. Some of the Focus Standards will overlap with the TDP standards; however, as the instructional shifts and the Constructed Response Assessment items will prove, they call for a fundamentally different level of rigor and intensive focus.

Taken from: <http://tncore.org/math.aspx>

**For Math 5 the focus clusters include the following focus standards:**

5.NBT.A.1, 5.NBT.A.3(a,b), 5.NBT.A.4, 5.NBT.B.7 - Unit 1

5.NBT.B.5, 5.NBT.B.7 - Unit 3

5.NBT.B.6 - Unit 4

5.NF.A.1, 5.NF.A.2, 5.NF.B.3, 5.NF.B.4(a,b), 5.NF.B.5(a,b), 5.NF.B.6, 5.NF.B.7(a,b,c) - Unit 5

### **Common Core Mathematical Practice Standards**

The CCSS for Mathematical Practices are expected to be integrated into every mathematics lesson for all students grades K-12.

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

### **Common Core State Standards, Fluency in Mathematics**

Fluency is not meant to come at the expense of understanding but is an outcome of a progression of learning and sufficient thoughtful practice. It is important to provide the conceptual building blocks that develop understanding in tandem with skill along the way to fluency; the roots of this conceptual understanding often extend one or more grades earlier in the standards than the grade when fluency is finally expected. (PARCC MCF, v3.0, p. 4)

Wherever the word fluently appears in a content standard, the word means quickly and accurately. It means more or less the same as when someone is said to be fluent in a foreign language. To be fluent is to flow: Fluent isn't halting, stumbling, or reversing oneself. A key aspect of fluency in this sense is that it is not something that happens all at once in a single grade but requires attention to student understanding along the way. It is important to ensure that sufficient practice and extra support are provided at each grade to allow all students to meet the standards that call explicitly for fluency. (PARCC MCF, v3.0, p. 12)

#### **The fluency expectations for Math 5 is:**

5.NBT.B.5 - Multi-digit multiplication

### **Bold print or Strikethroughs within the standards.**

Bold print within any standard denotes that only that portion of the standard should be taught to mastery during that time period. Strikethroughs indicate portions of the standard that will be covered in another unit or concept.

### **Number of Teaching Days**

The number of teaching days for each unit is provided. This serves as a guide to ensure that all standards are taught during the school year.

### **Resources**

Current textbook adoption: McMillan McGraw Hill, Grade 5  
Manipulatives Kit, Grades 5-6

Questions or comments should be directed to Karl Bittinger or Jamie James, Math Curriculum Consulting Teachers.

Last updated on  
5/30/2013

CMCSS Curriculum Guide - Math 5  
Process Standards

These standards should be embedded in Math instruction all year long. They should influence the methods and strategies selected for instruction. Although most of them would apply to each unit of the curriculum, only those with specific applications have been included within the units of the pacing guide. The expectation is that the others will be incorporated on a regular basis to promote best practices in mathematics instruction.

GLE 0506.1.1 Use mathematical language, symbols, and definitions while developing mathematical reasoning.

✓0506.1.6 Communicate answers in correct verbal and numerical form; including use of mixed numbers or fractions and use of units.

GLE 0506.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.

SPI 0506.1.2 Estimate fraction and decimal sums or differences.

✓0506.1.2 Make reasonable estimates of fraction and decimal sums or differences using models.

✓0506.1.3 Explore different methods of estimation including rounding and truncating.

✓0506.1.5 Solve problems in more than one way and explain why one process may be more effective than another.

GLE 0506.1.4 Move flexibly between concrete and abstract representations of mathematical ideas in order to solve problems, model mathematical ideas, and communicate solution strategies.

✓0506.1.7 Organize and consolidate verbal statements involving fractions and mixed numbers into diagrams, symbols, and numerical expressions.

✓0506.1.8 Use patterns, models, and relationships as contexts for writing inequalities and simple equations.

GLE 0506.1.5 Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and solve problems and interpret solutions.

GLE 0506.1.6 Read and interpret the language of mathematics and use written/oral communication to express mathematical ideas precisely.

SPI 0506.1.3 Recognize the unit associated with the remainder in a division problem or the meaning of the fractional part of a whole given in either decimal or fraction form.

✓0506.1.4 Explore problems in different contexts to interpret the meaning of remainders as discrete values or not.

✓0506.1.6 Communicate answers in correct verbal and numerical form; including use of mixed numbers or fractions and use of units.

GLE 0506.1.7 Recognize the historical development of mathematics, mathematics in context, and the connections between mathematics and the real world.

✓0506.1.9 Use age-appropriate books, stories, and videos to convey ideas of mathematics.

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Process Standards

GLE 0506.1.8 Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts.

The standards listed below are applicable on a daily basis and should be incorporated into your teaching strategies as often as possible.

✓ 0506.1.6 Communicate answers in correct verbal and numerical form; including use of mixed numbers or fractions and use of units.

✓ 0506.1.9 Use age-appropriate books, stories, and videos to convey ideas of mathematics.

GLE 0506.1.6 Read and interpret the language of mathematics and use written/oral communication to express mathematical ideas precisely.

GLE 0506.1.7 Recognize the historical development of mathematics, mathematics in context, and the connections between mathematics and the real world.

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Unit Schedule

1st Semester			
Unit	Title	Dates	Days
Unit 0	Organizational Days	August 7, 2013	1
Unit 1	Whole Numbers and Decimals	August 9 - Sep. 6, 2013	20
Unit 2	Data and Graphing	September 9 - Sep. 27, 2013	15
Unit 3	Multiply Whole Numbers and Decimals	September 30 - Nov. 1, 2013	20
Unit 4	Divide Whole Numbers and Decimals	November 4 - Dec. 3, 2013	17
Unit 5	Variables, Expressions, and Equations	December 4 - Dec. 20, 2013	13
2nd Semester			
Unit	Title	Dates	Days
Unit 6	Fractions	January 7 - Mar. 7, 2014	42
Unit 7	Measurement	March 10 - Apr. 4, 2014	15
Unit 8	Coordinate Plane	April 7 - April 17, 2014	9
Unit 9	TCAP Week and Review	April 21 - May 2, 2014	10
Unit 10	Focus Clusters/Standards Review	May 5 - May 9, 2014	5
Unit 11	Geometry	May 12 - May 22, 2014	9

**Assessment Schedule**

Learning Links - Beginning of the Year (BOY)	August 19 - 30, 2013	1
Constructed Response Assessment (CRA)	October 2013 (TBA)	1
Learning Links - Middle of the Year (MOY)	January 7 - 24, 2014	1
CRA	February 2014 (TBA)	1
Learning Links - End of the Year (EOY)	April 1 - 17, 2014	1
TCAP	April 28 - May 2, 2014	1
CRA	May 2014 (TBA)	1

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Unit 0

**Unit 0: Organizational Days: 1 Day: August 7, 2013**

This unit is for classroom introduction and beginning of the year activities and pre-assessment.

**Unit 1: Whole Numbers and Decimals: 20 Days: August 9 to September 6, 2013**

**Understand the place value system. ■**

5.NBT.A.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and  $\frac{1}{10}$  of what it represents in the place to its left. ■

5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. ■

5.NBT.A.3 Read, write, and compare decimals to thousandths. ■

5.NBT.A.3a Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g.,  $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (\frac{1}{10}) + 9 \times (\frac{1}{100}) + 2 \times (\frac{1}{1000})$ . ■

5.NBT.A.3b Compare two decimals to thousandths based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons. ■

SPI 0506.2.9 Compare whole numbers, decimals ~~and fractions~~ using the symbols  $<$ ,  $>$ , and  $=$ .

5.NBT.A.4 Use place value understanding to round decimals to any place. ■

**Perform operations with multi-digit whole numbers and with decimals to hundredths. ■**

5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. ■

5.NBT.B.7 fully address decimals in SPI 0506.2.5

✓0506.2.3 Use visual models, benchmarks, and equivalent forms to add and subtract commonly used ~~fractions~~ and decimals.

✓ 0506.2.5 Make reasonable estimates of ~~fraction~~ and **decimal** sums and differences.

(✓ 0506.1.5 Solve problems in more than one way and explain why one process may be more effective than another.)

GLE 0506.2.1 Extend the understanding of place value through millions and **millionths** in various contexts and representations.

SPI 0506.2.1 Read and write numbers from millions to **millionths** in various contexts.

SPI 0506.2.7 Recognize equivalent representations for the same number.

GLE 0506.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.

SPI 0506.1.2 Estimate ~~fraction~~ and **decimal** sums or differences.



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### Unit 1

✓0506.1.2 Make reasonable estimates of ~~fraction~~ and **decimal** sums and differences using models.

✓ 0506.1.3 Explore different methods of estimation including rounding and truncating.

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Unit 2

**Unit 2: Data and Graphing: 15 Days: September 9 to September 27, 2013**

SPI 0506.5.1 Depict data using various representations, (include line plots in preparation for CCSS 5.MD.2 in Unit 6) including decimal and/or fractional data.

✓0506.5.2 Represent data using ordered pairs in the first quadrant of the coordinate system.

✓ 0506.5.4 Recognize the differences in representing categorical and numerical data.

GLE 0506.1.5 Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and solve problems and interpret solutions.

GLE 0506.1.8 Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts. (e.g., spreadsheets)

GLE 0506.1.7 Recognize the historical development of mathematics, mathematics in context, and the connections between mathematics and the real world.

It is critical that line plots are included in this unit while teaching various data representations in order to be prepared for 5.MD.2 in Unit 6. According to Common Core, students will have had exposure to line plots since 2nd grade.

**The following are additional Common Core State Standards.**

**Gaps should be addressed when pacing permits.**

**These standards will be fully implemented beginning August 2014.**

**Convert like measurement units within a given measurement system. □**

5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. □

**NOTE: While conversions are not taught in 5th grade TDP standards, they do occur in TDP 4th grade.**

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Unit 3

**Unit 3: Multiply Whole Numbers and Decimals:**

**20 Days: September 30 - November 1, 2013**

**Perform operations with multi-digit whole numbers and with decimals to hundredths. ■**

5.NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm. ■ **FS**

5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. ■

5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. ■

GLE 0506.2.5 Develop fluency in solving multi-step problems using whole numbers, ~~fractions, mixed numbers~~ and decimals.

✓ 0506.2.7 Understand the placement of the decimal point in calculations of **multiplication** and ~~long division~~, including the placement in the estimation of the answer.

GLE 0506.1.8 Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts.

✓ 0506.1.5 Solve problems in more than one way and explain why one process may be more effective than another.

✓ 0506.1.6 Communicate answers in correct verbal and numerical form, including use of mixed numbers or fractions and use of units.

**Unit 4: Divide Whole Numbers and Decimals: 17 Days: November 4 to December 3, 2013**

**Perform operations with multi-digit whole numbers and with decimals to hundredths.**

5.NBT.B.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. ■

5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. ■

GLE 0506.2.3 Develop fluency with division of whole numbers. Understand the relationship of divisor, dividend, and quotient in terms of multiplication and division.

SPI 0506.2.3 Select a reasonable solution to a real-world division problem in which the remainder must be considered.

(SPI 0506.2.4 Solve problems involving the division of two- and three-digit whole numbers by one- and two-digit whole numbers.)

✓0506.2.8 Understand that division by zero is undefined.

GLE 0506.1.6 Read and interpret the language of mathematics and use written/oral communication to express mathematical ideas precisely

SPI 0506.1.3 Recognize the unit associated with the remainder in a division problem or the meaning of the fractional part of a whole given in either decimal or fraction form.

✓0506.1.4 Explore problems in different contexts to interpret the meaning of remainders as discrete values or not.

SPI 0506.2.7 Recognize equivalent representations for the same number.

SPI 0506.2.8 Write terminating decimals in the form of fractions or mixed numbers.

✓ 0506.2.7 Understand the placement of the decimal point in calculations of multiplication and **long division**, including the placement in the estimation of the answer.

**Unit 5: Variables, Expressions, and Equations: 13 Days December 4 -  
December 20, 2013**

GLE 0506.3.2 Develop and apply the concept of variable.

✓ 0506.3.2 Use variables appropriately to represent numbers whose values are not yet known.

GLE 0506.3.3 Understand and apply the substitution property.

✓ 0506.3.1 Evaluate an expression by substituting non-negative rational number values for letter variables in the expression.

GLE 0506.3.4 Solve single-step linear equations and ~~inequalities~~.

✓ 0506.3.3 Solve single-step linear equations using inverse operations.

✓ 0506.3.5 Determine if a given value is a solution to a linear equation/~~inequality~~.

GLE 0506.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.

✓ 0506.1.5 Solve problems in more than one way and explain why one process may be more effective than another.

✓ 0506.1.8 Use patterns, models, and relationships as contexts for writing ~~inequalities~~ and simple equations.

**The following are additional Common Core State Standards.**

**Gaps should be addressed when pacing permits.**

**These standards will be fully implemented beginning August 2014.**

**Write and interpret numerical expressions. o**

5.OA.A.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. o

5.OA.A.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as  $2 \times (8 + 7)$ . Recognize that  $3 \times (18932 + 921)$  is three times as large as  $18932 + 921$ , without having to calculate the indicated sum or product. o

**Unit 6: Fractions: 42 Days : January 7, 2014 - March 7, 2014**

**Use equivalent fractions as a strategy to add and subtract fractions. ■**

5.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example,  $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$ . (In general,  $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$ .) ■

GLE 0506.2.4 Develop fluency with addition and subtraction of proper and improper fractions and mixed numbers; explain and model the algorithm.

SPI 0506.2.6 Add and subtract proper and improper fractions as well as mixed numbers.

✓ 0506.2.3 Use visual models, benchmarks, and equivalent forms to add and subtract commonly used **fractions** and decimals.

✓ 0506.2.6 Add and subtract mixed numbers.

5.NF.A.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result  $\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$ , by observing that  $\frac{3}{7} < \frac{1}{2}$ . ■

SPI 0506.2.5 Solve addition and subtraction problems involving both fractions and decimals.

**Apply and extend previous understandings of multiplication and division to multiply and divide fractions. ■**

5.NF.B.3 Interpret a fraction as division of the numerator by the denominator ( $\frac{a}{b} = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret  $\frac{3}{4}$  as the result of dividing 3 by 4, noting that  $\frac{3}{4}$  multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size  $\frac{3}{4}$ . If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie? ■

5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. ■

5.NF.B.4a Interpret the product  $(\frac{a}{b}) \times q$  as a parts of a partition of  $q$  into  $b$  equal parts; equivalently, as the result of a sequence of operations  $a \times q \div b$ . For example, use a visual fraction model to show  $(\frac{2}{3}) \times 4 = \frac{8}{3}$ , and create a story context for this equation. Do the same with  $(\frac{2}{3}) \times (\frac{4}{5}) = \frac{8}{15}$ . (In general,  $(\frac{a}{b}) \times (\frac{c}{d}) = \frac{ac}{bd}$ .) ■

5.NF.B.4b Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. ■

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Unit 6

5.NF.B.5 Interpret multiplication as scaling (resizing), by: ■
5.NF.B.5a Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. ■
5.NF.B.5b Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying $a/b$ by 1. ■
5.NF.B.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. ■
5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. <sup>1</sup> ■
5.NF.B.7a Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$ . ■
5.NF.B.7b Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$ . ■
5.NF.B.7c Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $1/3$ -cup servings are in 2 cups of raisins? ■

<p>✓0506.3.6 Recognize there are many numbers between any two whole numbers on the number line.</p> <p>SPI 0506.2.7 Recognize equivalent representations for the same number.</p> <p>SPI 0506.2.9 Compare whole numbers, decimals and fractions using the symbols <math>&lt;</math>, <math>&gt;</math>, and <math>=</math>.</p> <p>GLE 0506.1.4 Move flexibly between concrete and abstract representations of mathematical ideas in order to solve problems, model mathematical ideas, and communicate solution strategies.</p> <p>✓0506.1.7 Organize and consolidate verbal statements involving fractions and mixed numbers into diagrams, symbols, and numerical expressions.</p> <p>✓ 0506.2.5 Make reasonable estimates of <b>fraction</b> and decimal sums and differences.</p>
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Unit 6

GLE 0506.2.5 Develop fluency in solving multi-step problems using whole numbers, fractions, mixed numbers, and decimals.

SPI 0506.2.8 Write terminating decimals in the form of fractions or mixed numbers.

SPI 0506.1.2 Estimate **fraction** and decimal sums or differences.

✓0506.1.2 Make reasonable estimates of **fraction** and decimal sums and differences using models.

✓0506.1.6 Communicate answers in correct verbal and numerical form, including use of mixed numbers or fractions and use of units.

✓0506.1.7 Organize and consolidate verbal statements involving fractions and mixed numbers into diagrams, symbols, and numerical expressions.

SPI 0506.3.2 Evaluate multi-step numerical expressions involving fractions using order of operations ( May only use multiplication, division, and exponents with whole numbers, other operations can include fractions at this point in time.)

SPI 0506.3.3 Find the unknown in single-step equations involving fractions and mixed numbers.

**The following are additional Common Core State Standards.**

**Gaps should be addressed when pacing permits.**

**These standards will be fully implemented beginning August 2014.**

**Represent and interpret data. □**

5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit ( $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ ). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally. □

<sup>1</sup> - Students able to multiply fraction in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.



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Unit 7

**Unit 7: Measurement: 15 Days : March 10 - April 4, 2014**

SPI 0506.4.4 Solve problems involving surface area and volume of rectangular prisms and polyhedral solids.

✓ 0506.4.5 Quantify total volume as filling space with same-sized units of volume without gaps or overlap.

✓ 0506.4.6 Decompose prisms to calculate surface area and volume.

**The following are additional Common Core State Standards.**

**Gaps should be addressed when pacing permits.**

**These standards will be fully implemented beginning August 2014.**

**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. ■**

5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. ■

5.MD.C.3a A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. ■

5.MD.C.3b A solid figure which can be packed without gaps or overlaps using  $n$  unit cubes is said to have a volume of  $n$  cubic units. ■

5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. ■

5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. ■

5.MD.C.5a Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. ■

5.MD.C.5b Apply the formulas  $V = l \times w \times h$  and  $V = b \times h$  for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems. ■

5.MD.C.5c Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems. ■

**Unit 8: Coordinate Plane: 9 Days : April 7 - April 17, 2014**

GLE 0506.4.3 Describe length/distance relationships using the first quadrant of the coordinate system.

SPI 0506.4.5 Find the length of vertical or horizontal line segments in the first quadrant of the coordinate system, including problems that require the use of fractions and decimals.  
(*supplement to include common decimals/fractions to include lengths by counting units*)

✓0506.4.8 Identify characteristics of the set of points that define vertical and horizontal line segments.

✓ 0506.5.2 Represent data using ordered pairs in the first quadrant of the coordinate system.

**The following are additional Common Core State Standards.**

**Gaps should be addressed when pacing permits.**

**These standards will be fully implemented beginning August 2014.**

**Graph points on the coordinate plane to solve real-world and mathematical problems.**  
o

5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. o

**Analyze patterns and relationships.**

5.OA.B.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so. o

**Graph points on the coordinate plane to solve real-world and mathematical problems.**  
o

5.G.A.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).  
o

**NOTE: While this concept has been introduced in TDP in the 4th grade, it will not appear in CCSS until 5th grade.**

CMCSS Curriculum Guide - Math 5  
Unit 9

**Unit 9 - TCAP Week and Review: 10 days: April 21-May 2, 2014**

TCAP Achievement assessment window is April 28-May 2

**Unit 10: Focus Standard Review 5 Days : May 5 - May 9, 2014**

**Use equivalent fractions as a strategy to add and subtract fractions. ■**

5.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example,  $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$ . (In general,  $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$ .) ■

5.NF.A.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result  $\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$ , by observing that  $\frac{3}{7} < \frac{1}{2}$ . ■

**Apply and extend previous understandings of multiplication and division to multiply and divide fractions. ■**

5.NF.B.3 Interpret a fraction as division of the numerator by the denominator ( $\frac{a}{b} = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret  $\frac{3}{4}$  as the result of dividing 3 by 4, noting that  $\frac{3}{4}$  multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size  $\frac{3}{4}$ . If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie? ■

5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. ■

5.NF.B.4a Interpret the product  $(\frac{a}{b}) \times q$  as a parts of a partition of  $q$  into  $b$  equal parts; equivalently, as the result of a sequence of operations  $a \times q \div b$ . For example, use a visual fraction model to show  $(\frac{2}{3}) \times 4 = \frac{8}{3}$ , and create a story context for this equation. Do the same with  $(\frac{2}{3}) \times (\frac{4}{5}) = \frac{8}{15}$ . (In general,  $(\frac{a}{b}) \times (\frac{c}{d}) = \frac{ac}{bd}$ .) ■

5.NF.B.4b Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. ■

5.NF.B.5 Interpret multiplication as scaling (resizing), by: ■

5.NF.B.5a Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. ■

5.NF.B.5b Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence  $\frac{a}{b} = (\frac{n \times a}{n \times b})$  to the effect of multiplying  $\frac{a}{b}$  by 1. ■

5.NF.B.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. ■

5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.<sup>1</sup> ■

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Unit 10

5.NF.B.7a Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for  $(1/3) \div 4$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that  $(1/3) \div 4 = 1/12$  because  $(1/12) \times 4 = 1/3$ . ■

5.NF.B.7b Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for  $4 \div (1/5)$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that  $4 \div (1/5) = 20$  because  $20 \times (1/5) = 4$ . ■

5.NF.B.7c Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share  $1/2$  lb of chocolate equally? How many  $1/3$ -cup servings are in 2 cups of raisins? ■

<sup>1</sup> - Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.

<b>Unit 11: Geometry: 9 Days : May 12 - May 22, 2014</b>
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<b>Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.■</b>
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5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. ■
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<b>Classify two-dimensional figures into categories based on their properties. o</b>
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5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles. o
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5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties. o
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